

REMARKS

The Applicant has reviewed the text of the claims filed June 6, 2000, and the text of the subsequent amendments filed September 19, 2002 and June 9, 2003. All deficiencies or ambiguities have been resolved and the amended claims, as presented above, conform to the revised amendment practice of 37 CFR 1.121.

The Applicant has been prompted to provide reference within the original disclosure where following elements, listed in claims 36 and 44, are described:

“woven fibers containing carbon filaments”,
“crimped carbon fibers”,
“noncrimped carbon fibers”,
“stitched bonded fibers containing carbon filaments”, and
“a plurality of noncrimped fibers containing carbon filaments that are arranged in a selected pattern”.

The specification makes numerous references to fibers, both conductive and non-conductive.

At page 5, beginning at line 19, it states:

“The carbon *fibers* are *preferably arranged* at an angle of +/- 45 with respect to said longitudinal axis of said body and are arranged in *tows* or bundles to provide approximately 50-90% coverage of said body.”
(emphasis added)

At page 7, beginning at line 25, it states

“At least a portion of the *fibers* 201 should be conductive. Graphite fibers have been found suitable for this purpose. For additional structural support, the composite fibers 201 may comprise a *combination of graphite and fiberglass braids*.” (emphasis added)

The specification makes numerous references to braiding of fibers. For example see page 8, at line 1 “biaxial carbon braided sleeving”; line 2 “braid angle of these components is preferably +/- 45 degrees”; and beginning at line 14, “(e)lectric current is applied to the conductive braids 201,” Reference is also made to element 201 of Figure 2 and element 3 of Figure 8.

The Complete Textile Glossary, being the 4th Edition of the Dictionary of Fiber and Textile Technology, Hoechst Celanese Corporation, 2001, provides the following definitions:

"Braid: 1. A narrow textile band, often used as trimming or binding, formed by plaiting several strands of yarn. The fabric is formed by interfacing the *yarns diagonally to the production axis of the material*. 2. In aerospace textiles, a system of three or more yarns which are *interlaced* in such a way that no two yarns are twisted around each other." (emphasis added)

"Woven fabric: Generally used to refer to fabric composed of two sets of yarns, warp and filling that is formed weaving which is the *interlacing* of these sets of yarns. However, there are woven fabrics in which three sets of yarn are used to give a triaxial weave. The manner in which the two sets of yarns are *interlaced* determines the weave." (emphasis added)

Referencing The American Heritage College Dictionary, 3rd Edition, the following definitions of braid and weave are provided.

"Braid 1.a.: To *interweave* three or more lengths of: b. To create (something) by such *interweaving*." (emphasis added)

"Weave 1.a. To make (cloth) by interlacing the treads of the weft and the warp on a loom. b. To *interlace* (threads for example) into cloth. 2. To construct by *interlacing* or interweaving strips or stands of material. 3.a. To *interweave* or combine (elements) into a complex whole." (emphasis added)

“Woven *adj.* Made by weaving. *n.* Material or a fabric made by weaving.”

Referencing The American Heritage College Dictionary, 3rd Edition, a fiber is defined to include: “A natural or synthetic filament capable of being spun into yarn” or “Material made of such filaments.”

The Complete Textile Glossary, being the 4th Edition of the Dictionary of Fiber and Textile Technology, Hoechst Celanese Corporation, 2001, provides the following definitions:

“Tow: A large strand of continuous manufactured fiber filaments *without definite twist*, collected in loose, rope-like form, usually held together by *crimp*.” (emphasis added)

“Crimp: 1. The waviness of a fiber expressed as crimps per unit length.”

The American Heritage College Dictionary, 3rd Edition, defines crimp “1. To press or pinch into small regular folds or ridges.”

It is the Applicant’s position that fibers or filaments can be in the form of tows. Tows are fibers held together by crimp. The Applicant has disclosed fibers and tows that include conductive filaments. This disclosure appears at pages 5, line 19 and 7 line 25. The tows are a plurality of fibers (and filaments) that are crimped. Fibers can also be held together by twisting, e.g. as a type of yarn.

The Complete Textile Glossary provides the following definition:

“Yarn: A generic term for a continuous strand of textile fibers, filaments or material in a form suitable for knitting, weaving or otherwise intertwining to form a textile fabric. Yarn occurs in the following forms (1) a number of fibers twisted together (spun yarn); (2) a number of filaments laid together without twist (a zero-twist yarn); (3) a number of filaments laid together with a degree of twist; (4) a single filament with or

without twist (a monofilament); or (5) a narrow strip of material, such as paper, plastic, film, or metal foil, with or without twist, intended for use in a textile construction.”

The American Heritage College Dictionary, 3rd Edition, defines yarn to be “1. A continuous strand of *twisted* threads of natural or synthetic material such as wool or nylon, used in weaving or knitting.” (emphasis added)

In regard to disclosure of “stitched bonded fibers containing carbon filaments”, at page 4, line 19, the disclosure states:

“The pre-preg includes a structural *fiber matrix* supporting a heat curable resin.” (emphasis added)

Further at page 10, line 1, the disclosure states:

“A pre-preg 3 is removably attached to the outer surface of the composite 205 by conventional means, such as rubber bands, *sewing*, or adhesive.” (emphasis added)

Referring again to the Complete Textile Glossary:

“Stitch Bonding: A bonding technique for nonwovens in which the fibers are connected by stitches *sewn* or knitted through the web. Also know as quilting.” (emphasis added)

SUMMARY

The Applicant has revised the claims in response to the Examiner's comments. The Applicant has also provided the requested references to the disclosure filed June 6, 2000 that support the new Markush group appearing in claims 36 and 44. The Applicant believes its Response is now in order for review by the Examiner. Such action is respectfully requested.

Respectfully Submitted,

Date:

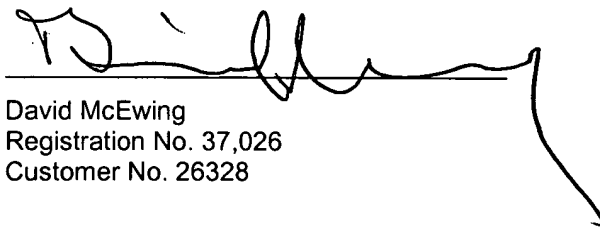
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